

GILA RIVER BASIN

09474000 GILA RIVER AT KELVIN, AZ

LOCATION--Lat 33°06'10", long 110°58'33", in NE_{1/4}NW_{1/4} sec. 12, T.4 S., R.13 E., Pinal County, Hydrologic Unit 15050100, on left bank at Kelvin, 500 ft downstream from Mineral Creek, 18 mi downstream from San Pedro River, and 19 mi upstream from Ashurst-Hayden Dam.

DRAINAGE AREA--18,011 mi², of which 5,125 mi² is below Coolidge Dam.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD--Jan. 1911 to current year.

REVISED RECORDS--WSP 329: 1911. WSP 609: 1916(M). WSP 629: 1914–17. WSP 1119: 1913, 1915, 1917(M), 1921(M), 1922–23, 1927(M). WSP 1283: Drainage area.

GAGE--Water-stage recorder. Datum of gage is 1,745.02 ft above sea level. Prior to June 15, 1914, and Dec. 1, 1914, to Aug. 31, 1915, nonrecording gages at several sites within 2 mi of present site at different datums. Sept. 1, 1915, to Sept. 30, 1963, water-stage recorder at site 900 ft downstream at datum 1.80 ft lower. Jan. 16, 1985, to June 1990, supplementary water-stage recorder at same site and datum.

REMARKS--Records fair, except estimated daily discharges, which are poor. Large diversions above station for irrigation, of which about 90 percent is above Coolidge Dam.

About 82,000 acres irrigated, a considerable portion by pumping from ground water. Flow regulated by San Carlos Reservoir 49 mi upstream since Nov. 15, 1928.

(See sta 09469000.) San Pedro River contributes major portion of unregulated inflow.

AVERAGE DISCHARGE (adjusted for storage in San Carlos Reservoir)--92 years, 516 ft³/s, 373,800 acre-ft/yr; median of yearly mean discharges, 314 ft³/s, 227,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD--1911–28: Maximum discharge, about 132,000 ft³/s Jan. 20, 1916, gage height, 19.5 ft, site and datum then in use, from rating curve extended above slope-area measurement at gage height, 16.2 ft for flood of Sept. 28, 1926; no flow Feb. 25, 1913.

1929–2000: Maximum discharge, 100,000 ft³/s Oct. 2, 1983, gage height, 33.0 ft from floodmark, from rating curve extended above 12,000 ft³/s on basis of peak discharge computed by step-backwater method at Hayden Railroad Bridge, 17.8 mi upstream, and by flood-routing; minimum daily, 0.0 ft³/s Aug. 4, 2000.

EXTREMES FOR CURRENT YEAR--Peak discharges greater than base discharge of 4,000 ft³/s and (or) maximum (*):

| Date | Time | Discharge (ft ³ /s) | Gage height (ft) |
|---------------|------|--------------------------------|------------------|
| Aug. 27 | 1000 | *2,070 | *7.19 |

Minimum daily discharge, no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003 DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|--------|--------|------|------|------|-------|-------|------|--------|---------|--------|--------|
| 1 | 79 | 3.8 | 105 | 61 | 74 | 529 | 305 | 117 | 17 | 0.11 | 86 | e55 |
| 2 | 92 | 2.7 | 137 | 61 | 81 | 409 | 267 | 114 | 17 | 0.18 | 22 | e30 |
| 3 | 102 | 2.2 | 150 | 61 | 89 | 351 | 250 | 112 | 16 | 0.18 | 13 | e10 |
| 4 | 105 | 3.8 | 138 | 62 | 93 | 334 | 231 | 111 | 15 | 0.26 | 8.5 | e5.0 |
| 5 | 107 | 5.1 | 135 | 62 | 94 | 361 | 219 | 113 | 14 | 0.30 | 6.8 | e0.50 |
| 6 | 108 | 5.8 | 136 | 62 | 97 | 348 | 212 | 108 | 14 | 0.44 | 5.9 | 0.05 |
| 7 | 110 | 7.7 | 151 | 64 | 105 | 374 | 208 | 98 | 12 | 0.50 | 5.1 | 27 |
| 8 | 118 | 7.2 | 162 | 75 | 105 | 353 | 204 | 107 | 8.3 | 0.36 | 4.3 | 27 |
| 9 | 127 | 7.1 | 166 | 80 | 106 | 305 | 240 | 107 | 6.2 | 0.31 | 4.3 | 5.1 |
| 10 | 138 | 8.3 | 147 | 81 | 105 | 253 | 272 | 108 | 4.2 | 0.31 | 5.4 | 13 |
| 11 | 151 | 3.6 | 134 | 81 | 106 | 234 | 276 | 107 | 2.7 | 0.41 | 2.2 | 10 |
| 12 | 156 | 2.1 | 127 | 81 | 109 | 229 | 272 | 104 | 1.8 | 0.46 | 1.6 | 9.7 |
| 13 | 157 | 1.7 | 120 | 83 | 117 | 228 | 275 | 102 | 1.2 | 0.35 | 1.5 | 7.2 |
| 14 | 140 | 0.89 | 114 | 83 | 140 | 227 | 275 | 97 | 0.60 | 0.24 | 1.6 | 6.7 |
| 15 | 123 | 0.74 | 115 | 78 | 133 | 229 | 287 | 88 | 0.27 | 0.29 | 367 | e6.1 |
| 16 | 124 | 0.63 | 116 | 66 | 126 | 233 | 304 | 79 | 0.08 | 0.24 | 70 | e5.5 |
| 17 | 123 | 0.53 | 114 | 63 | 126 | 274 | 226 | 81 | 0.01 | 0.29 | 24 | e1.5 |
| 18 | 124 | 0.61 | 104 | 63 | 127 | 290 | 231 | 83 | 0.01 | 0.34 | 16 | 0.00 |
| 19 | 104 | 0.68 | 91 | 61 | 127 | 377 | 213 | 81 | 0.04 | 0.31 | 14 | 0.00 |
| 20 | 62 | 0.82 | 89 | 57 | 152 | 440 | 179 | 71 | 0.11 | 0.19 | 14 | 0.00 |
| 21 | 56 | 0.70 | 81 | 58 | 182 | 446 | 177 | 65 | 0.12 | 0.18 | 14 | 0.00 |
| 22 | 53 | 0.81 | 51 | 55 | 182 | 434 | 197 | 62 | 0.17 | 0.41 | 13 | 0.00 |
| 23 | 66 | 0.89 | 46 | 54 | 170 | 426 | 212 | 55 | 0.20 | 0.34 | 22 | 0.00 |
| 24 | 97 | 1.0 | 43 | 54 | 164 | 415 | 184 | 50 | 0.02 | 12 | 97 | 0.01 |
| 25 | 102 | 1.0 | 27 | 54 | 167 | 413 | 156 | 37 | 0.19 | 52 | 40 | 0.11 |
| 26 | 82 | 1.1 | 21 | 53 | 333 | 409 | 126 | 33 | 0.28 | 100 | 136 | 0.02 |
| 27 | 28 | 1.7 | 27 | 53 | 775 | 409 | 117 | 28 | 0.25 | 243 | 668 | 0.00 |
| 28 | 16 | 5.3 | 38 | 53 | 851 | 397 | 116 | 25 | 0.40 | 278 | 171 | 0.00 |
| 29 | 11 | 10 | 46 | 53 | --- | 399 | 113 | 22 | 0.29 | 413 | 160 | 0.00 |
| 30 | 7.5 | 16 | 57 | 47 | --- | 381 | 121 | 19 | 0.10 | 451 | e180 | 0.00 |
| 31 | 5.2 | --- | 60 | 49 | --- | 356 | --- | 18 | --- | 586 | e85 | --- |
| TOTAL | 2873.7 | 104.50 | 3048 | 1968 | 5036 | 10863 | 6465 | 2402 | 132.54 | 2142.00 | 2259.2 | 219.49 |
| MEAN | 92.7 | 3.48 | 98.3 | 63.5 | 180 | 350 | 216 | 77.5 | 4.42 | 69.1 | 72.9 | 7.32 |
| MAX | 157 | 16 | 166 | 83 | 851 | 529 | 305 | 117 | 17 | 586 | 668 | 55 |
| MIN | 5.2 | 0.53 | 21 | 47 | 74 | 227 | 113 | 18 | 0.01 | 0.11 | 1.5 | 0.00 |
| AC-FT | 5700 | 207 | 6050 | 3900 | 9990 | 21550 | 12820 | 4760 | 263 | 4250 | 4480 | 435 |

| | | | | | |
|-------------|----------------|-----------|---------|----------|-------------|
| CAL YR 2002 | TOTAL 25244.53 | MEAN 69.2 | MAX 524 | MIN 0.00 | AC-FT 50070 |
| WTR YR 2003 | TOTAL 37513.43 | MEAN 103 | MAX 851 | MIN 0.00 | AC-FT 74410 |

e Estimated

GILA RIVER BASIN
09474000 GILA RIVER AT KELVIN, AZ—CONTINUED
WATER-QUALITY RECORDS

LOCATION--Water samples collected between Florence-Kelvin road bridge and Mineral Creek, and 700 ft to 500 ft upstream from gaging station.

PERIOD OF RECORD--Dec. 1950 to Sept. 1994, Feb. 1996 to Feb. 1998, Sept. 2001 to current year.

PERIOD OF DAILY RECORD--

SPECIFIC CONDUCTANCE: Oct. 1964 to Sept. 1976, Oct. 1996 to Feb. 1998.

WATER TEMPERATURE: Dec. 1950 to Sept. 1976, Oct. 1996 to Feb. 1998.

SUSPENDED-SEDIMENT DISCHARGE: Jan. 1958 to Sept. 1976.

REMARKS--No inflow from Mineral Creek between sampling point and gaging station except during infrequent periods of heavy local rains. Unpublished daily specific conductance measurements for period December 1950 to September 1964 available from District Office in Tucson, AZ.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

| Date | Time | Instantaneous discharge, cfs (00061) | Barometric pressure, mm Hg (00076) | Disolved oxygen, mg/L (00025) | Disolved oxygen, mg/L (00300) | pH, water, percent of saturation (00301) | Specif. conductance, unfltrd field, std units (00400) | Temper-ature, air, deg C (00095) | Temper-ature, water, deg C (00020) | Temper-ature, water, deg C (00010) | Hard-ness, water, mg/L as CaCO ₃ (00900) | Noncarb-hard-ness, water, mg/L as CaCO ₃ (00904) | Calcium, mg/L (00915) |
|---|---|---|--|--|---|---|---|---|--|--|---|--|--------------------------|
| NOV 12... | 1250 | 3.2 | 2.1 | 720 | 10.0 | 111 | 8.3 | 2290 | 24.0 | 17.3 | 460 | 190 | 119 |
| MAR 26... | 1400 | 408 | 170 | 715 | 9.0 | 101 | 8.4 | 1780 | 28.0 | 17.7 | 240 | 36 | 56.0 |
| JUN 23... | 1210 | .20 | 3.7 | 706 | 8.1 | 118 | 7.8 | 2860 | 36.5 | 30.4 | 1000 | 730 | 236 |
| SEP 09... | 1140 | 3.2 | 1600 | 713 | 6.2 | 84 | 8.1 | 469 | 32.0 | 27.8 | 180 | 52 | 61.0 |
| <hr/> | | | | | | | | | | | | | |
| Calcium water, unfltrd recoverable, mg/L (00916) | Magnesium water, unfltrd recoverable, mg/L (00925) | Magnesium water, unfltrd recoverable, mg/L (00927) | Potassium water, adsorption ratio (00935) | Sodium water, fltrd, mg/L (00931) | Sodium water, fltrd, mg/L (00930) | Alkalinity, inc titr., mg/L as CaCO ₃ (39086) | Bicarbonate, wat flt, incr. titr., mg/L as CaCO ₃ (00453) | Carbonate, wat flt, incr. titr., mg/L as CaCO ₃ (00452) | Chloride, water, field, mg/L (00940) | Fluoride, water, field, mg/L (00950) | Sulfate, water, field, mg/L (00945) | Residue water, fltrd, sum of constituents mg/L (70301) | |
| NOV 12... | 124 | 39.0 | 41.0 | 7.50 | 6 | 290 | 269 | 305 | 11 | 380 | 1.1 | 320 | 1320 |
| MAR 26... | 75.0 | 24.0 | 29.0 | 6.70 | 7 | 240 | 202 | 237 | 5 | 340 | 1.2 | 150 | 940 |
| JUN 23... | 235 | 102 | 102 | 8.30 | 3 | 250 | 283 | 345 | <1 | 320 | 1.8 | 830 | 1920 |
| SEP 09... | 72.0 | 7.10 | 13.0 | 11.0 | .5 | 15.0 | 130 | 154 | 2 | 14.0 | .2 | 49.0 | 235 |
| <hr/> | | | | | | | | | | | | | |
| Residue water, fltrd, tons/acre-ft (70303) | Residue evap. at 180degC (70300) | Residue total at 180degC (00530) | Residue + org-N, water, mg/L (00625) | Ammonia water, unfltrd pending, mg/L as N (71845) | Ammonia water, unfltrd mg/L as N (00610) | Nitrite + organic nitrogen, mg/L as N (00630) | Phosphorus, water, unfltrd mg/L as N (00605) | Total nitro- gen, water, unfltrd mg/L as NO ₃ (00600) | COD, water, unfltrd mg/L as NO ₃ (71887) | E coli, high MF, water, unfltrd mg/L as NO ₃ (00340) | m-TEC level, water, unfltrd mg/L as NO ₃ (100 mL) | Chrom-ium, water, unfltrd ug/L (31633) | |
| NOV 12... | 1.96 | 1440 | 2 | .40 | -- | <.01 | <.020 | -- | .06 | -- | -- | 11 | 23 |
| MAR 26... | 1.37 | 1010 | 253 | 1.2 | .03 | .02 | <.020 | 1.2 | .28 | -- | -- | 14 | E10k |
| JUN 23... | 2.76 | 2030 | 8 | .30 | -- | <.01 | <.020 | -- | .03 | -- | -- | 8 | 65 |
| SEP 09... | .45 | 328 | 672 | 3.5 | .44 | .34 | 6.70 | 3.2 | 1.40 | 10 | 45.2 | 37 | <1k |
| <hr/> | | | | | | | | | | | | | |
| Antimony, water, fltrd, ug/L (01095) | Antimony, water, unfltrd ug/L (01097) | Arsenic water, fltrd, ug/L (01000) | Arsenic water, unfltrd ug/L (01002) | Barium, water, fltrd, ug/L (01005) | Barium, water, unfltrd recoverable, ug/L (01007) | Beryllium, water, unfltrd recoverable, ug/L (01010) | Beryllium, water, unfltrd recoverable, ug/L (01012) | Boron, water, unfltrd recoverable, ug/L (01020) | Boron, water, unfltrd recoverable, ug/L (01022) | Cadmium water, fltrd, ug/L (01025) | Cadmium water, unfltrd ug/L (01027) | Chrom-ium, water, fltrd ug/L (01030) | |
| NOV 12... | <1 | <1 | 5 | 6 | 100 | 110 | <1 | <1 | 289 | 302 | <.5 | <.5 | <1 |
| MAR 26... | <1 | <1 | 6 | 5 | 68.0 | 140 | <1 | <1 | 253 | 270 | <.5 | <.5 | <1 |
| JUN 23... | <1 | <1 | 4 | 4 | 110 | 130 | <1 | <1 | 260 | 279 | <.5 | <.5 | <1 |
| SEP 09... | <1 | <1 | 4 | 7 | 83.0 | 260 | <1 | 1 | 70 | 76 | <.5 | <.5 | <1 |

GILA RIVER BASIN
09474000 GILA RIVER AT KELVIN, AZ—CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

| Date | Chrom- | Copper, | Iron, | Lead, | Mangan- | Manganese, | Mercury | Nickel, | | | | |
|--------------|---|---|---|---|---|---|--|---|--|---|---|---|
| | ium, water, unfltrd recover -able, ug/L (01034) | water, unfltrd recover -able, ug/L (01040) | water, unfltrd recover -able, ug/L (01042) | water, unfltrd recover -able, ug/L (01046) | water, unfltrd recover -able, ug/L (01045) | water, unfltrd recover -able, ug/L (01049) | water, unfltrd recover -able, ug/L (01051) | water, unfltrd recover -able, ug/L (01055) | water, unfltrd recover -able, ug/L (71890) | water, unfltrd recover -able, ug/L (71900) | water, unfltrd recover -able, ug/L (01065) | water, unfltrd recover -able, ug/L (01067) |
| NOV 12... | <1 | 2 | 3 | <2 | 90 | <2 | <2 | 552 | 592 | <.10 | <.1 | 1 |
| MAR 26... | 4 | 3 | 33 | <2 | 5320 | <2 | 8 | 4 | 473 | <.10 | <.1 | 1 |
| JUN 23... | <1 | <2 | <2 | 3 | 175 | <2 | <2 | 2480 | 2680 | <.10 | <.1 | 2 |
| SEP 09... | 11 | 14 | 53 | 3 | 15000 | <2 | 29 | 44 | 826 | <.10 | <.1 | 2 |
| | | | | | | | | | | | | |
| Date | Selen- | Selen- | Silver, | Stront- | | Zinc, | Sus- | Sus- | | | | |
| | ium, water, filtrd, ug/L (01145) | ium, water, unfltrd ug/L (01147) | Silver, water, unfltrd, ug/L (01075) | Silver, water, recover -able, ug/L (01077) | ium, water, recover -able, ug/L (01082) | Thall- ium, water, unfltrd, ug/L (01057) | Thall- ium, water, recover -able, ug/L (01059) | Zinc, water, unfltrd, ug/L (01090) | water, unfltrd, recover -able, ug/L (01092) | sedi- ment concen- tration mg/L (80154) | sedi- ment load, tons/d (80155) | |
| NOV 12... | 2 | 2 | <1 | <1 | 1190 | <2 | <2 | 49 | <2 | 7 | .06 | |
| MAR 26... | 2 | 2 | <1 | <1 | 760 | <2 | <2 | 3 | 28 | 915 | 1010 | |
| JUN 23... | 3 | <1 | <1 | <1 | 1310 | <2 | <2 | <2 | <2 | 59 | .03 | |
| SEP 09... | <1 | <1 | <1 | <1 | 340 | <2 | <2 | <2 | 71 | 658 | 5.7 | |

Remark codes used in this report:

< -- Less than
E -- Estimated value

Value qualifier codes used in this report:

k -- Counts outside acceptable range